

Trend Study 00-4-01

Study site name: Alfalfa Seeding.

Vegetation type: Alfalfa Seeding.

Compass bearing: frequency baseline 295 degrees magnetic.

Frequency belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

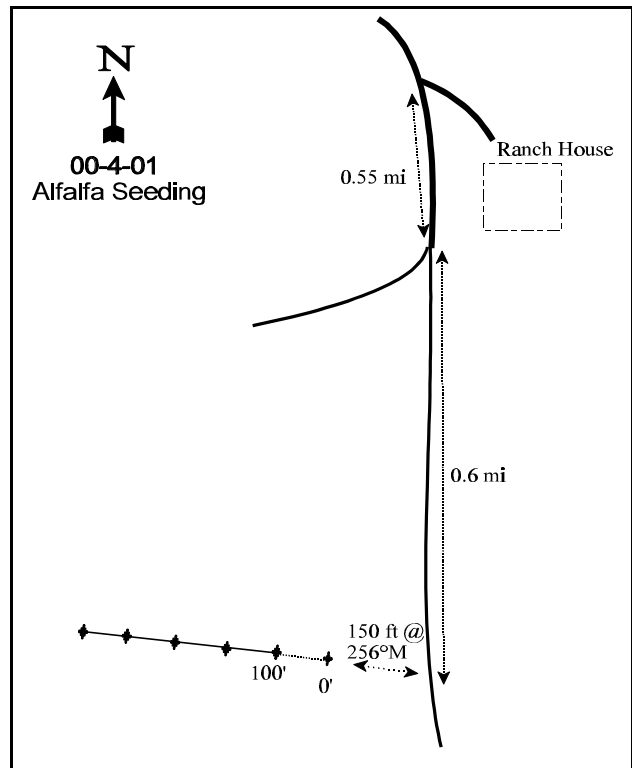
LOCATION DESCRIPTION

From the ranch house, travel south for 1.15 miles to a witness post on the right hand (west) side of the road. From the witness post walk 150 feet at 256 degrees magnetic to the 0-foot baseline stake. The baseline runs 295 degrees magnetic. The 0 foot stake is marked with browse tag number 171.



Map Name: Antelope Island

Township 2N, Range 3W, Section 15



Diagrammatic Sketch

UTM 4529216 N 401284 E

DISCUSSION

Trend Study No. 00-4

The Alfalfa Seeding study is located south of the old ranch house and northeast of Blackburn Spring. The site was placed in a burn that was seeded primarily with alfalfa, intermediate wheatgrass and crested wheatgrass. The study lies on a slight northeast aspect at an elevation of about 4,300 feet. Bison use is heavy at this study. In 2001, a pellet group transect read in association with the vegetation transect showed 121 bison days use/acre (299 bison days use/ha). Deer use of the area is very low at an estimated 2 deer days use/acre (5 ddu/ha).

The soil is shallow with a layer of gravel about 4 inches below the soil surface. Soil textural analysis indicates it to be a sandy loam with a slightly alkaline pH (7.7). Soil temperature averaged 61°F at a depth of 11 inches. Effective rooting depth (see methods) is estimated at less than 11 inches. Potassium may be limiting factor for this site as there was only 7.6 ppm. It has been demonstrated that values less than 10 ppm can limit plant growth and development. Cover from vegetation and litter are abundant and well disbursed, except for a few patches where bison have used them for wallowing, erosion is minimal.

Only one browse species was encountered on the site, white rubber rabbitbrush. Rabbitbrush density is estimated at only 20 plants/acre. In 2001, some utilization had occurred as evidenced by the decrease in average height and crown from the previous 2 readings.

Cheatgrass is the dominant grass on this site, even with the seeding of intermediate and crested wheatgrass. Cheatgrass provided over 75% of the total grass cover in 1994 and 1996. In 2001, cheatgrass significantly decreased in nested frequency, but was still sampled in nearly every quadrat. Cheatgrass was small statured in 2001 due to the dry winter and spring preceding the date of sampling. Cheatgrass currently ('01) contributes 50% of the grass cover and 16% of the total vegetation cover at the site. Intermediate wheatgrass is the most abundant perennial species followed by bulbous bluegrass and crested wheatgrass. Intermediate wheatgrass and bulbous bluegrass both significantly increased in nested frequency in 2001, while crested wheatgrass remained at a stable level. Moderate to heavy use was noted on intermediate and crested wheatgrass in 2001.

The dominate forb is alfalfa, contributing nearly 28% average cover in 2001. These plants are very robust and healthy and displayed some use in 2001. Storksbill was found in low abundance in 1994 and 1996, but sharply increased in 2001. Storksbill had an estimated cover of nearly 24% in 2001. All other forbs were infrequent and insignificant in 2001.

1996 TREND ASSESSMENT

Soil trend is stable with no noticeable erosion reported in 1996. Vegetation cover has declined slightly, while litter cover has increased slightly. The browse trend is stable with white rubber rabbitbrush being the only species encountered. Although cheatgrass is the dominate grass, other seeded grass species will compete for resources to help keep it in check. Alfalfa is large and vigorous providing cover and forage. Herbaceous trend is stable with very little change from 1994.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - stable (3)

2001 TREND ASSESSMENT

Trend for soil continues to be stable. Vegetation and litter cover are high, and except for some bison wallowing areas, bare ground is low and erosion is minimal. Browse is unimportant on the site with only white rubber rabbitbrush being sampled in a very low density. Trend for the herbaceous understory is slightly up. Perennial grasses increased in sum of nested frequency and cheatgrass significantly decreased in nested frequency. Alfalfa, which maintained a stable nested frequency, remains the dominant forb.

TREND ASSESSMENT

soil - stable (3)

browse - n/a

herbaceous understory - slightly up (4)

HERBACEOUS TRENDS --

Herd unit 00 , Study no: 4

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %		
		'94	'96	'01	'94	'96	'01	'94	'96	'01
G	Agropyron cristatum	98	77	76	35	26	31	2.75	1.09	1.47
G	Agropyron intermedium	_b 116	_b 156	_a 230	37	51	67	6.19	5.06	5.57
G	Bromus tectorum (a)	_b 427	_b 455	_a 393	96	98	98	29.17	23.51	12.03
G	Elymus cinereus	1	-	-	1	-	-	.03	.00	.03
G	Festuca myuros (a)	_a -	_b 21	_c 38	-	7	14	-	.43	1.21
G	Poa bulbosa	_a -	_a 3	_b 81	-	1	29	-	.15	3.42
G	Poa fendleriana	1	-	-	1	-	-	.00	-	-
G	Poa secunda	5	-	4	1	-	2	.15	.00	.30
G	Vulpia octoflora (a)	-	-	10	-	-	3	-	-	.04
Total for Annual Grasses		427	476	441	96	105	115	29.17	23.95	13.29
Total for Perennial Grasses		221	236	391	75	78	129	9.14	6.31	10.80
Total for Grasses		648	712	832	171	183	244	38.31	30.27	24.09

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover %		
		'94	'96	'01	'94	'96	'01	'94	'96	'01
F	<i>Draba nemorosa</i> (a)	-	-	8	-	-	4	-	-	.02
F	<i>Erodium cicutarium</i> (a)	_a 33	_b 102	_c 379	11	37	96	.22	.58	23.91
F	<i>Holosteum umbellatum</i> (a)	_{ab} 5	_a 2	_b 16	2	1	7	.01	.00	.11
F	<i>Lappula occidentalis</i> (a)	-	-	1	-	-	1	-	-	.00
F	<i>Medicago sativa</i>	211	209	182	69	76	66	21.29	32.47	27.95
F	<i>Polygonum douglasii</i> (a)	-	2	-	-	1	-	-	.00	-
F	<i>Salsola iberica</i> (a)	3	-	-	2	-	-	.03	-	-
F	<i>Sisymbrium altissimum</i> (a)	-	-	8	-	-	3	-	-	.01
F	<i>Tragopogon dubius</i>	-	-	-	-	-	-	-	-	.03
Total for Annual Forbs		41	106	412	15	39	111	0.27	0.59	24.06
Total for Perennial Forbs		211	209	182	69	76	66	21.29	32.47	27.98
Total for Forbs		252	315	594	84	115	177	21.57	33.06	52.05

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 00 , Study no: 4

T y p e	Species	Strip Frequency			Average Cover %		
		'94	'96	'01	'94	'96	'01
B	<i>Chrysothamnus nauseosus</i> <i>hololeucus</i>	1	1	0	.15	.03	.00
Total for Browse		1	1	0	0.15	0.03	0.00

BASIC COVER --

Herd unit 00 , Study no: 4

Cover Type	Nested Frequency			Average Cover %		
	'94	'96	'01	'94	'96	'01
Vegetation	484	486	484	69.76	62.37	68.24
Rock	75	39	51	1.02	.61	1.77
Pavement	62	38	76	.39	.14	.19
Litter	491	498	461	60.32	69.96	46.87
Cryptogams	15	8	7	.23	.04	.18
Bare Ground	76	44	115	1.83	.78	3.91

SOIL ANALYSIS DATA --

Herd Unit 00, Study no: 04, Alfalfa Seeding

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
10.7	61.4 (11.3)	7.7	72.7	14.0	13.3	1.1	7.6	259.2	.8

PELLET GROUP FREQUENCY --

Herd unit 00 , Study no: 4

Type	Quadrat Frequency			Pellet Transect	
				Pellet Groups per Acre	Days Use per Acre (ha)
	'94	'96	'01	01	01
Rabbit	1	-	-	9	N/A
Deer	1	-	-	26	2 (5)
Bison	3	10	29	1453	121 (299)
Antelope	-	1	-	-	-

BROWSE CHARACTERISTICS --

Herd unit 00 , Study no: 4

A G E		Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.			Total
		1	2	3	4	5	6	7	8	9	1	2	3	4					
Chrysothamnus nauseosus hololeucus																			
M	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	38	0	
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20	23	44	1	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	5	15	0	
D	94	-	1	-	-	-	-	-	-	-	1	-	-	-	20			1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>						<u>%Change</u>					
'94		100%			00%			00%						+ 0%					
'96		00%			00%			00%											
'01		00%			00%			00%											
Total Plants/Acre (excluding Dead & Seedlings)														'94	20	Dec:	100%		
														'96	20		0%		
														'01	0		0%		